

In re Patent Application of:
YAO
Serial No. 10/736,859
Filed: 12/16/2003
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REMARKS

Claims 19-40 are currently pending in the present application.

Restriction between the following inventions of Groups I and II has been required.

- I. Claims 30 through 40 are said to be drawn to a semiconductor device, classified in class 257, subclass 439.
- II. Claims 19 through 29 are said to be drawn to a method of making a semiconductor device, classified in class 438, subclass 1+.

The Office Action states that the inventions are distinct, each from the other for the following reasons:

2. Inventions I and II are related as the product and process of making. The inventions are said to be distinct "if" either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product, or (2) that the product as claimed can be made by another and materially different process (MPEP S. 806.05(f)).

It is further suggested that the product as claimed can be made by another materially different process. For example, as an alternative to the methods set forth in claims 19-29, instead of absorbing light to produce carriers that are transported therethrough, one could apply a voltage.

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It is further suggested that because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes is proper.

Applicant respectfully disagrees with the Examiner's construction of claims 19-29, and the conclusion.

Applicant believes that claims 19-29 and 30-40 should be considered within the same application as not being distinct inventions.

Applicant respectfully submits that the allegation that claims 19 through 29 are drawn to a method of making a semiconductor device, classified in class 438, subclass 1+, is inaccurate.

A reading of claims 19 through 29 reveals that those claims are not drawn to a method of making a semiconductor device, but rather to a method of generating electrical current. Independent claim 19, for example, defines:

A method of generating an electrical current in response to light.

The steps required to generate the electric current employs the particular structure of the device defined in claim 30.

In this regard, in claim 19 the first step (a) recites:

(a) absorbing light by a light-absorption intrinsic semiconductor layer having a thickness t_i , a doping concentration below $5 \times 10^{14} \text{ cm}^{-3}$, and producing, in response to light absorbed by said light-absorption intrinsic semiconductor layer, electrical

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carriers that are transported therethrough;

Step (b) of claim 19 recites:

(b) absorbing light by a first light absorption doped semiconductor layer doped with one of p- and n-conductivity type-determining impurities, having a thickness t_{d1} , and a first doping concentration dc_1 between $1e17$ and $2e18$ cm^{-3} , said first light absorption doped semiconductor layer having a first surface thereof abutting a first surface of said light absorption intrinsic semiconductor layer, and producing, in response to light absorbed by said first light absorption doped semiconductor layer, electrical carriers that are transported therethrough, and wherein t_{d1}/t_i is greater than or equal to 0.17; and

Step (c) of claim 19 recites:

(c) extracting electrical current comprised of said carriers produced by and transported through said light-absorption intrinsic semiconductor layer and said first light absorption doped semiconductor layer, by means of a first electrode electrically coupled to said first light absorption doped semiconductor layer, and a second electrode electrically coupled to said light absorption intrinsic semiconductor layer.

It is clear that the language of claim 19 does not define a method of "manufacture". It recites a method of generating carriers using the device defined in claim 30.

Accordingly, Applicant respectfully traverses the restriction requirement, and requests withdrawal of the same, as well as an action on the merits of all the claims.

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However, since restriction of the invention(s) has been required under 35 U.S.C. 121, Applicant tentatively elects Invention II defined by claims 19-29, and provisionally withdraws claims 30-40 with traverse.

Favorable reconsideration of this application is respectfully requested.

Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account No. 50-1465 and please credit any excess fees to such deposit account.

Respectfully submitted,



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CERTIFICATE OF FACSIMILE TRANSMISSION

I HEREBY CERTIFY that the foregoing correspondence has been forwarded via facsimile number 571-273-8300 to MAIL STOP AMENDMENT, COMMISSIONER FOR PATENTS, this 19 day of June 2006.